December 1999

Management Reflections in Relation to Enterprise Wide Systems

Roger Sor
Edith Cowan University, Australia

Management Reflections in Relation to Enterprise Wide Systems

Roger Sor, Edith Cowan University, Perth Western Australia Email r.sor@cowan.edu.au

Abstract

The use of enterprise wide system (EWS) packages is growing rapidly, as is the list of questions being raised about these packages. This paper looks at the issues raised in some of these questions and suggests that they are really special examples of management issues discussed by theorists from at least the early 1960s. The broader implication drawn is that it would be profitable to see the use of EWS technology as a management strategy.

Keywords

Enterprise Wide Systems, Management Theory

Introduction

In time that I have been involved with a particular Enterprise Wide System (EWS) package (SAP), I have heard many comments of concern and some anecdotal information has come my way. Given the nature of this information and the number of people, who presented it as factual, even though they attributed the comments to others, I wondered about the authenticity of the comments. As I pondered the comments I recognised a mythical quality in them. More importantly, the issues raised seem to be special cases of management theories discussed from 1960s to the 1980s. Some of these myths and management issues are discussed below.

Using an enterprise wide system robs an organisation of its competitive advantage.

The reason given for this belief is that that if every one is using the same software, all achieving world's best practice, then no one has an advantage. To put it differently, if every one is rich, no one is rich. The question to ask is, from where does competitive advantage come? If it comes solely from being efficient, then this is an important point and maybe it can be delivered by EWS packages. However competitive advantage will in the end come from a consideration of the environment in which the business operates (see Michael Porter 1980,1985). This means one should consider such non-computer-based matters as the market niche in which management chooses to operate, what your competitors are doing, what substitutes there are for your product or service and what environmental forces impinge on your organisation.

Using an enterprise wide system makes the organisation inflexible.

The argument here is that implementing an EWS is a massive task requiring large amounts of time and resources. Having made this commitment one is locked into the resultant procedures and structures. Consider the case when management decides on a strategic change. Chandler (1962) said that structure follows strategy. However, Woodward (1965) and later Thompson (1967) and Reeves and Woodward (1970) wrote of how technology determines structure. This became known as the 'technological imperative'. The important point here is that the link between technology and structure is determined by the nature of the interdependencies created by the technology. EWS package developers pride themselves on the dense set of interconnections that these packages claim to manage. Having implemented a large EWS, with all of its interdependencies and the resultant structures it may be difficult to make changes at the rate required for the new strategy to be effective.

Consider some hypothetical case where management might want to change structure to regain or maintain the organisation's strategic advantage. Downsizing is such a case. Management could decide to downsize and outsource much of the goods and/or services that it once produced internally. If the EWS is a complex giant with a tangle of interdependent processes, it might be impossible to restructure the EWS in time for the new structure/strategy to achieve the objectives management has for it. Even when EWS packages are produced for smaller organisations a problem might arise when, during the growth process management wants to restructure the organisation from one of process orientation to one of departmental orientation. Relatively speaking, this might be just as complex and time consuming a task for the small organisation as it was for the large organisation discussed above.

With time, as has already started to happen, however, the developers of these packages will address this issue. It does not take much imagination to see a modular approach being developed where one can select organisational components 'off the shelf' and put them together to construct the organisation of one's choice.

The butterfly effect

The tight integration of all processes in an EWS package reminds one of the butterfly effect as discussed in relation to Chaos theory. Gleick (1987:8) describes it thus "…a butterfly stirring the air in Peking today can transform (into) storm systems next month in New York."

Since organisations will have to consider the consequences of changing their processes to meet current needs, the butterfly effect is most relevant. If an organisation implements a process designed to make a small change, it is possible that the consequences somewhere else in the organisation may be profound. On a worldwide basis, consider the Y2K problem as an

example. The question is, how would one know that one has thought through, let alone tested all the ramifications of a process change?

The above leads to a question. Is it possible to design a large organisation, with the help of EWS technology, so that it functions like a series of loosely coupled small organisations? See Simon (1962) and Glassman (1963). If this were possible, the organisation as a whole could be at least partially shielded from the consequences of actions in another part of the organisation.

In Western Australia, housing construction organisations have evolved into such a structure. In these firms virtually all building functions are subcontracted out. Each building project is assigned to a supervisor who collects about him/her a group of trades people. These people work together, acting like a small firm within a larger firm. In this way if one project experiences difficulties the consequences for the rest of the organisation are minimised.

Integrating all the components of the supply chain

Chirgwin (1998:21) quotes Glenn Tubb, the Managing Director for Australia and New Zealand of JD Edwards as saying "Once the core system is operational within your company, your next task will be to drive access to it 'down the food chain' - getting as many of your business partners as possible feeding into the supply chain system."

The supply chain system referred to by Tubb evolved out of the strategy of vertical integration discussed in the 1980s. Three concepts are inextricably interwoven; Supply chain management, Vertical integration and outsourcing. EWS packages have to integrate all three, but it is a strategic decision as to whether a product or service is made or offered from within the organisation, or outsourced.

Harrigan (1985) developed a model of vertical integration which allows for the fact that not all components in the supply chain will be totally owned by the parent company. In fact, she allows for a variety of strategies that still give the organisation control over what happens. She said that for vertical integration, and by implication, in today's terms, supply chain management to be successful one would have to see vertical integration as being composed of the following dimensions.

- Stages of integration: the number of steps in the chain of processing
- Breadth of integration: the way the organisation defines the boundaries of its strategic business units (SBU)
- Degree of integration: the total proportion of a particular component or service an SBU purchases from or supplies to a sister SBU.
- Forms of integration: the relationship an organisation has with the elements in the vertical integration chain (it need not be total ownership to have control)

The forces that affect the degree to which each dimension is implemented are:

- The phase of industry development
- Industry volatility
- Asymmetries in bargaining power
- The organisation's strategic objectives

Harrigan (1985) reports that the more uncertain the demand, the more likely a product or service is to be outsourced, while the greater the synergy between upstream or downstream business units, the greater the likelihood the good or service would be produced within the organisation. she also states that in opting for vertical integration one is looking to increase the value-added margins for those components in the value-adding chain and accepts the risk of strategic inflexibility inherent in taking on another business unit. Williamson (1979, 1981) discusses related topic of the transaction cost analysis of outsourcing, compared to providing the good or service internally (possibly a vertically integrated component) See also Jarillo (1988) on this issue. Strategically, this is a dynamic issue. Organisations would ideally like to change their mix of vertical integration/supply chain management strategies proactively, when deemed appropriate. This is a case where the ability of EWS packages to meet the challenge of flexibility can be questioned. In one way, at least, they are moving in that direction. Currently, EWS packages are being developed to reduce the cost of interacting with other organisations by making the Internet an important point of access to the organisation.

Summary

The development and growth in popularity of EWS packages is a new and exciting phenomenon. This newness means that questions are being raised faster than they can be answered. This paper has selected some of the issues and asked whether they are as new as they might at first appear. The answer, for the issues selected, is no. Management theorists have been discussing these issues for decades. This suggests two points. Firstly, the EWS package implemented by an organisation is a tool, and only a tool, even if it is an all pervasive one. Secondly, it is profitable to look behind the issues raised when EWS packages are being considered and ask whether there is already a body of management theory that will help management resolve those issues. In other words to view the use of EWS packages as a management strategy.

References

Chandler, A. D. Strategy and Structure. Cambridge Mass: MIT Press. 1962

Chirgwin, Richard. The Culture of the Model Enterprise. Systems. February 1998:14-22.

Glassman, Robert G. Persistance and Loose Coupling in Living Systems. Behavioral Science. 1973, 18:83-98.

Gleick, James. CHAOS: Making a New Science. London: Cardinal, Sphere books. 1990

Harrigan Kathryn Rudie. Vertical Integration and Corporate Strategy. Academy of Management Journal. 1985, 28(2):397-425.

Jarillo, J. Carlos. On Strategic Networks. Strategic Management Journal, 1988, 9:31-41.

Porter, Michael E. Competitive Advantage: Creating and sustaining Superior Performance. New York: The Free Press, 1985

---. Competitive Strategy: Techniques for Analysing Industries and Competitors. New York: The Free Press, 1980.

Reeves, T. K. and Woodward, Joan. The Study of Managerial Control. in: Joan Woodward (Ed). Industrial Organization: Behavior and Control. London: Oxford University Press, 1970

Simon, Herbert A. The Architecture of Complexity. Proceedings of the American Philosophical Society. 106(6):467-482, 1962

Thompson, James D. organizations in action. St Louis: Mc Graw Hill Book Company.

Williamson, Oliver E. 1981 The Economics of Organization: The Transaction Cost Approach. American Journal of Sociology, 1967, 87(3):548-575.

---. Transaction-Cost Economics: The Governance of Contractual Relations. Journal of Law and Economics, 1979, 22:223-261.